

ATTORNEY DOCKET NO. 07121.0003U1  
Application No. 09/990,874

Amendments to the Drawings

The attached sheets of drawings include changes to Figures 1 and 2. These sheets, which include Figures 1 and 2, replace the original sheets including Figures 1 and 2. In Figure 1, previously omitted SEQ ID NOs have been added and the description of the abbreviations has been removed. In Figure 2, previously omitted SEQ ID NOs have been added.

Attachment: Replacement sheets

Annotated Sheets Showing Changes

## Annotated Sheet Showing Changes

Ca	23					S AFNTQAAP	31
Cs	1					G	1
Tr2#		10	20	30	40		
Bp	1	RTITNNEMSN	HGGVDYELMK	DYGNT-SMTL	NNGGAFSAGW	N--NIGNA	45
Ca	32	KTITSNEIGV	NGGYDYELMK	DYGNT-SMTL	KNGGAFSCQW	S--NIGNA	76
Fs	1	NSSVIGNVG	SSPYHYELWY	QGG-NNSMTF	YDNGTYKASW	N--GTNDF	44
Cs	2	RIIYDNEIGT	HGGVDYELMK	DYGNT-IMEL	NDGGTFSCQW	S--NIGNA	46
Rf	1	SAADQQTGRN	VGGYDYEMNN	QNGGQASMN	PGAGSFPCQW	S--NIENF	46
Tr2	1	QTIQPGIGY	NGGYFYSYWN	DGHGGVITYN	GPGGQFVSQW	S--NSGNF	45
Tv	1	QTIQPGIGY	NGGYFYSYWN	DGHGGVITYN	GPGGQFVSQW	S--NSGNF	45
Th	1	QTIQPGIGY	NGGYFYSYWN	DGHGGVITYN	GPGGQFVSQW	S--NSGNF	45
Sc	1	SGTPSSSTGT	DGGYFYSYWN	DGAGDATYQN	NGGGSYTLTW	SG--NMGNL	46
Am	1	S	AGINYYQWYN	GNLGDFTY-D	ESAGTFPMYW	EDGVSSDF	38
Am	1	S	AGINYYQWYN	GNLGDFTY-D	ESAGTFPMYW	EDGVSSDF	38
AT	1	S	AGINYYQWYN	GNLGDFTY-D	ESAGTFPMYW	EDGVSSDF	38
Tr1	1	ASINYYQWYN	TGG-QVSY-	PSNTGPFVSQW	N--TQDDF	34	
Aa	1	RSTPSSSTGE	NGGYFYSYWN	DGGGDVITYN	CNAGSYSVSW	S--NVGNF	45
Ss	1	ATTIT-NEIGY	D-GMYYSFMT	DGGGSVSMNL	NGGGSYSTSW	T--NCGNF	45
SLB	1	DTVVTTNQEGT	NGGYYSFMT	DGGGSVSMNL	NGGGSYSTSW	T--NCGNF	47
SLC	1	ATTITINQIGT	D-GMYYSFMT	DGGGSVSMNL	NGGGSYSTSW	T--NCGNF	46
TL	1	QITPNSBEGW	HGGYFYSYWN	DGGAQATYTN	LEGATYELSW	C--DGGNL	45
Tf	1	AVTSNETGY	HGGYFYSYWN	DAGTVSMEL	GPGGNYSTSW	R--NTGNF	45
Bc	1		ASTDYQWNT	DGGGIVNAVN	SGGGNYSVSW	S--NTGNF	36
Bs	1		ASTDYQWNT	DGGGIVNAVN	SGGGNYSVSW	S--NTGNF	36

FIGURE 1

## Annotated Sheet Showing Changes

Tr2#		50		60		70		80	
Bp	46	LFRK-GKKFD	ST-RTHHQLG	NISINYNASF	N-PSGNSYLC	VYGWTSQP	90		
Ca	77	LFRK-GKKFP	DT-QTYKQLG	NISVNYNCNY	Q-PYGN SYLC	VYGWTSQP	121		
Fs	45	LARV-GPKYD	EK-HTVEELGP	IDAYVKWSKQ	GSAGGYN YIG	IYGTWVDP	91		
Cs	47	LFRK-GKKFP	SD-KTYQELG	DIVVEYGCDY	N-PNGNSYLC	VYGWTRNF	91		
Rf	47	LARM-GKRYD	SQKKNYKAFG	NIVLTYDVEY	T-PRGNSYMC	VYGWTRNF	92		
Tr2	46	VGGK-GWQPG	TKNKV----	---INFS-GS	YNPNGNSYLS	VYGWGRNP	83		
Tv	46	VGGK-GWQPG	TKNKV----	---INFS-GS	YNPNGNSYLS	VYGWGRNP	83		
Th	46	VGGK-GWQPG	TKNKV----	---INFS-GS	YNPNGNSYLS	VYGWGRNP	83		
Sc	47	VGGK-GWNP	AASRS----	---ISYS-GT	YQPNGNSYLS	VYGWTRSS	84		
An	39	VVGL-GWTTG	SSNA-----	---ITYSAEY	SASGSSSYLA	VYGWVNYP	77	76	
Ak	39	VVGL-GWTTG	SSNA-----	---ITYSAEY	SASGSSSYLA	VYGWVNYP	77	76	
At	39	VVGL-GWTTG	SSNA-----	---ITYSAEY	SASGSSSYLA	VYGWVNYP	77		
Tr1	35	VVGK-GWTTG	SSAF-----	---INFGGSF	SVNSGTGLLS	VYGWSTNP	72		
Aa	46	VGGK-GWNP	SAKD-----	---ITYSGNF	T-PSGNGYLS	VYGWTDTP	83		
Se	46	VAGK-GWANG	GR-RT-----	---VRYT-GW	FNPSCNGYGC	LYGWTSNP	82		
SLB	48	VAGK-GWANG	GR-RT-----	---VOYS-GS	FNPSCNAXLA	LYGWTSNP	84		
SLC	49	VAGK-GWSTG	DGN-----	---VRYN-GY	FNPVNGYGC	LYGWTSNP	82		
TL	46	VGGK-GWNP	LNARA-----	---IHFE-GV	YQPNGNSYLA	VYGWTRNP	83		
Tf	46	VAGK-GWATG	GR-RT-----	---VTYS-AS	FNPSCNAXLT	LYGWTRNP	82		
Bc	37	VVGK-GWTTG	SPFRT-----	---INYNAGV	WAPNGNGYLT	LYGWTRSP	75		
Bs	37	VVGK-GWTTG	SPFRT-----	---INYNAGV	WAPNGNGYLT	LYGWTRSP	75		

Tr2#		90		100		110		120		130
Bp	91	LAEYIVDSW	GTYR-PT--G	AYKGSFYADG	GTVDIYETTR	VNOPSIIIG	135			
Ca	122	LVEYIVDSW	GSWRPP--GG	TSKCTITVDG	GIYDIYETTR	INOPSIQ	167			
Fs	92	LVEYIVDDW	FNKPGANLLG	QRKCEFTVDG	DTYEIQNTR	VOQPSIIG	139			
Cs	92	LVEYIVDSW	GSWRPP--GA	TPKGTITQWAGT	YIYEIETTR	VNOPSIDG	138			
Rf	93	LAEYIVDSW	GSWRPPGNDG	EVKCTVSANG	NTYDIKTRM	YNOPSLDG	140			
Tr2	84	LIEYIVENF	GTYN-PSGGA	TKLGEVTSDG	SVYDIYRTOR	VNOPSIIIG	130			
Tv	84	LIEYIVENF	GTYN-PSGGA	TKLGEVTSDG	SVYDIYRTOR	VNOPSIIIG	130			
Th	84	LIEYIVENF	GTYN-PSGGA	TKLGEVTSDG	SVYDIYRTOR	VNOPSIIIG	130			
Sc	95	LIEYIVESY	GSYD-PSGAA	SRKGSVTCTG	ATYDILSTWR	YNAPSIDG	131			
An	77	GAEYIVEDY	GDYN-PCSSA	TSIGTVYSDG	STYQVCTDTR	INEPSITG	124	123		
Ak	77	QAEYIVEDY	GDYN-PCSSA	TSIGTVYSDG	STYQVCTDTR	TNEPSITG	124	123		
At	78	QAEYIVEDY	GDYN-PCSSA	TSIGTVYSDG	STYQVCTDTR	INEPSITG	124			
Tr1	73	LIEYIMEDN	HNY--PAQ-G	TVAGIVTSDG	ATYIWTENTR	YNAPSITG	117			
Aa	84	LIEYIVESY	GDYN-PSGGG	TTAGNVSSDG	SVYDIYATR	TNAPSIDG	130			
Ss	85	LIEYIVDNW	GSYR-PT--G	ETAGIVHSDG	GTVDIYKTR	YNAPSVEA	127			
SLB	85	LIEYIVDNW	GSYR-PT--G	ETAGIVHSDG	GTVDIYKTR	YNAPSVEG	127			
SLC	85	LIEYIVDNW	GSYR-PT--G	ETAGIVHSDG	GTVDIYKTR	YNAPSVEG	127			
TL	84	LIEYIVENF	GTVD-PSGGA	TDLGVECDG	SIYRLGKTR	YNAPSIDG	130			
Tf	83	LIEYIVESW	GTYR-PT--G	TYAGIVTTDG	GTVDIYKTR	YNAPSIEG	127			
Bc	76	LIEYIVDSW	GTYR-PT--G	TYAGIVKSDG	GTVDIYTTTR	YNAPSIDG	120			
Bs	76	LIEYIVDSW	GTYR-PT--G	TYAGIVKSDG	GTVDIYTTTR	YNAPSIDG	120			

FIGURE 1 CONT'D

## Annotated Sheet Showing Changes

Tr2#		140	150	160	
Bp	136	-IATFKQYWS	VROTCKRTS--	-----	GTVS VSAHFHFWES LGMPM-GK 174
Ca	168	-NTTFKQYWS	VRRTCKRTS--	-----	GTIS VSKHYAAWES KGMPL-GK 206
Fe	140	-TQTFPQYVS	VRKSARSC--	-----	GHID ITAHMKKWE LGMKM-GK 178
Cs	139	-TATFPQYWS	VRTSKRTS--	-----	GTIS VTEHFKQWER MGRM-GK 177
Rf	141	-TATFPQYWS	VROTSGSANN	QTNVMKGTID	VSKHFDWASA AGLDMSGT 187
Tr2	131	-TATFYQYWS	VRNRHR-S-S	-----	GSVN TANHFNAWAQ QCLTL-GT 168
Tv	131	-TATFYQYWS	VRKTHR-S-S	-----	GSVN TANHFNAWAQ QCLTL-GT 168
Th	131	-TATFYQYWS	VRNRHR-S-S	-----	GSVN TANHFNAWAQ HCLTL-GT 168
Sc	132	-TQTFEQYWS	VRNPKGAPGG	SIS--	GTVD VQCHFDWAKG LGMNLSDE 175
An	124126	-TSTFTQYVS	VRESTRTS--	-----	GTVT VANHFNEWAQ HGFON-SD 463 162
Ak	124126	-TSTFTQYVS	VRESTRTS--	-----	GTVT VANHFNEWAQ HGFON-SD 463 162
At	125	-TSTFTQYVS	VRESTRTS--	-----	GTVT VANHFNEWAH HGFON-SD 163
Tr1	118	-TATFNQYIS	VRNSPR-T-S	-----	GTVT VQNEHFWAS LGMNLSDE 168
Aa	131	-TQTFQYWS	VRONKR-VG-	-----	GTVT TSNHFNAWAK LGMNLSDE 168
Ss	128	-PAAFDQYWS	VRQSKVT--S	-----	GTIT TGNHFDWAK AGNMGNF 168
SlB	130	TR-TFQYWS	VRQSKR-TG-	-----	GTIT TGNHFDWAK AGNMGNF 168
SlC	128	TK-TFQYWS	VRQSKVTSGS	-----	GTIT TGNHFDWAK AGNMGNF 168
Tl	131	TQ-TFQYWS	VRQDKR-T-S	-----	GTVQ TGCNFDWAK AGNMGNF 168
Tf	128	TR-TFQYWS	VRQSKRTS--	-----	GTIT TGNHFDWAK AGNMGNF 168
Bc	121	DRITFTQYWS	VRQSKRRTGS	N----	ATIT TTNHVNWAKS HGMNLSGN 163
Bs	121	DRITFTQYWS	VRQSKRRTGS	N----	ATIT TSNHVNWAKS HGMNLSGN 163

Tr2#		170	180	190	
Bp	175	MYETAFIVEG	YQSSGSANVM	TNQLFIGN	201 SEQ ID NO:4
Ca	207	MHETAFNIEG	YQSSGKADVN	SMSINIGK	233 SEQ ID NO:6
Fe	179	MYEAKVLVEA	GGGSGSFDV-	TYFKMT	203 SEQ ID NO:18
Cs	178	MYEVALTVEG	YQSSGYANVY	KNEIRIGANP....	SEQ ID NO:7
Rf	188	LYEVSINIEG	YRSNGSANVK	SVSV	211 SEQ ID NO:8
Tr2	169	MDYQIVAVEG	YFSSGSASI-	TVS	190 SEQ ID NO:16
Tv	169	MDYQIVAVEG	YFSSGSASI-	TVS	190 SEQ ID NO:17
Th	169	MDYQIVAVEG	YFSSGSASI-	TVS	190 SEQ ID NO:14
Sc	176	HNQIVIVATEG	YQSSGTATI-	TVT	197 SEQ ID NO:9
An	163164	FNQYQVMAVEA	WSGAGSASV-	TISS	184 185 SEQ ID NO:1
Ak	163164	FNQYQVMAVEA	WSGAGSASV-	TISS	184 185 SEQ ID NO:54
At	164	FNQYQVMAVEA	WSGAGSAAV-	TISS	185 SEQ ID NO:2
Tr1	157	MNQQVVAVEG	WGSSGSASQ-	SVSN	178 SEQ ID NO:15
Aa	169	HNQYQILATEG	YQSSGSSSI-	TIQ	190 SEQ ID NO:18
Ss	167	RYYMINATEG	YQSSGSSSI-	TVSG	169 SEQ ID NO:12
SlB	169	SYYMINATEG	YQSSGTSI-	NVGG.....	SEQ ID NO:10
SlC	169	RYYMINATEG	YQSSGSSNI-	TVSG	191 SEQ ID NO:11
Tl	170	HYQIVIVATEG	YFSSGYARI-	TVADVG	194 SEQ ID NO:20
Tf	167	D-YMINATEG	YQSSGSSNV-	LGTS.....	SEQ ID NO:13
Bc	164	WYQVMAVEG	YQSSGSSNV-	TVW	185 SEQ ID NO:13
Bs	164	WYQVMAVEG	YQSSGSSNV-	TVW	185 SEQ ID NO:5

FIGURE 1 CONT'D

## Annotated Sheet Showing Changes

~~Bp~~ ~~Bacillus pumilus~~  
~~Ga~~ ~~Clotrichidium acetobutylicum-1962-KynB~~  
~~Go~~ ~~Clotrichidium acetobutylicum-KynA~~  
~~Rf~~ ~~Ruminococcus flavefaciens~~  
~~Tr2~~ ~~Trichoderma reesei-XYN-42~~  
~~Tv~~ ~~Trichoderma viride~~  
~~Th~~ ~~Trichoderma harzianum~~  
~~Ge~~ ~~Gehisophyllum commune-Xylanact-A~~  
~~An~~ ~~Aspergillus niger, var. awamori~~  
~~Aw~~ ~~Aspergillus kawachi-KynC~~  
~~At~~ ~~Aspergillus tubingensis~~  
~~Tr1~~ ~~Trichoderma reesei-XYN-1~~  
~~An~~ ~~Aspergillus awamori var. kawachi-Kyn-B~~  
~~Fe~~ ~~Fibrobacter sensu stricto-KYN-II~~  
~~Ge~~ ~~Exreptomyces sp. 36a~~  
~~ElB~~ ~~Exreptomyces lividans-Xln-B~~  
~~ElC~~ ~~Exreptomyces lividans-Xln-C~~  
~~Fl~~ ~~Thermomyces lanuginosus-Kyn~~  
~~Te~~ ~~Thermomonospora fusca-Tfca~~  
~~Bc~~ ~~Bacillus cereus~~  
~~Bs~~ ~~Bacillus subtilis~~

FIGURE 1 CONT'D

## Annotated Sheet Showing Changes

5'-CT AGC TAA GGA GG CTG CAG ATG<sup>st</sup>  
 G ATT CCT CC GAC GTC TAC  
 NheI | PstI

TrX-1  
 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16  
 Q T I Q P G T G Y N N G Y F Y S  
 CAA ACA ATA CAA CCA GGA ACC GGT TAC AAC AAC GGT TAC TTT TAC AGC  
 GTT TGT TAT GTT GGT CCT TGG CCA ATG TTG TTG CCA ATG AAA ATG TCG  
 TrX-8 AgeI

XyTv-2  
 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32  
 Y W N D G H G G V T Y T N G P G  
 TAT TGG AAC GAT GGC CAT GGT GGT GTT ACC TAT ACA AAC GGG CCC GGA  
 ATA ACC TTG CTA CCG GTA CCA CCA CAA TGG ATA TGT TTG CCC GGG CCT  
 NcoI XyTv-7 ApaI

33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48  
 G Q F S V N W S N S G N F V G G  
 GGC CAA TTT AGC GTC AAT TGG TCT AAC TCC GGA AAC TTC GTA GGT GGA  
 CCG GTT AAA TCG CAG TTA ACC AGA TTG AGG CCT TTG AAG CAT CCA CCT  
 MniI BspEI

TrX-3  
 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64  
 K G W Q F G T K N K V I N F S G  
 AAA GGT TGG CAA CCC GGG ACC AAA AAT AAG GTG ATC AAC TTC TCT GGA  
 TTT CCA ACC GTT GGG CCC TGG TTT TTA TTC CAC TAG TTG AAG AGA CCT  
 XmaI TrX-6

65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80  
 S Y N P N G N S Y L S V Y G W S  
 TCT TAT AAT CCG AAT GGG AAT TCA TAC TTA AGC GTC TAT GGC TGG TCT  
 AGA ATA TTA GGC TTA CCC TTA AGT ATG AAT TCG CAG ATA CCG ACC AGA  
 EcoRI AflII

XyTv-4  
 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95  
 R N P L I E Y Y I V E N F G T  
 AGA AAC CCA CTG ATT GAA TAT TAC ATT GTC GAA AAT TTC GGT AC  
 TCT TTG GGT GAC TAA CTT ATA ATG TAA CAG CTT TTA AAG C  
 Xba I XyTv-5 KpnI

FIGURE 2

## Annotated Sheet Showing Changes

|  
 XyTv-101  
 V D 92 93 94 95 96 97 98 99 100 101 102 103 104 105  
 TC GAC AAT TTC GGT ACC TAC AAT CCG AGT ACC GGC GCC ACA AAA TTA  
 3'-G TTA AAG CCA TGG ATG TTA GGC TCA TGG CCG CGG TGT TTT AAT  
 SalI | KpnI XyTv-110 Kasi/Nari  
  
 XyTv-102  
 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121  
 G E V T S D G S V Y D I Y R T Q  
 GGC GAA GTC ACT AGT GAT GGA TCC GTA TAT GAT ATC TAC CGT ACC CAA  
 CCG CTT CAG TGA TCA CTA CCT AGG CAT ATA CTA TAG ATG GCA TGG GTT  
 SpeI BamHI XyTv-109  
  
 Trx-103  
 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137  
 R V N Q P S I I G T A T F Y Q Y  
 CGC GTT AAT CAG CCA TCG ATC ATT GGA ACC GCC ACC TTT TAT CAG TAC  
 CGC CAA TTA GTC GGT AGC TAG TAA CCT TGG CGG TGG AAA ATA GTC ATG  
 MluI ClaI  
  
 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153  
 W S V R R N H R S S G S V N T A  
 TGG AGT GTT AGA CGT AAT CAT CGG AGC TCC GGT TCG GTT AAT ACT CGC  
 ACC TCA CAA TCT GCA TTA GTA GCC TCG AGG CCA AGC CAA TTA TGA CGC  
 Trx-108 SacI  
  
 XyTv-104  
 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169  
 N H F N A W A Q Q G L T L G T M  
 AAT CAC TTT AAT GCA TGG GCA CAG CAA GGG TTA ACC CTA GGT ACA ATG  
 TTA GTG AAA TTA CGT ACC CGT GTC GTT CCC AAT TGG AGT CCA TGT TAC  
 NsiI XyTv-107 AvrII  
  
 XyTv-105  
 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185  
 D Y Q I V A V E G Y F S S G S A  
 GAT TAT CAA ATC GTA CGC GTG GAA GGC TAC TTC TCG AGT GGT TCC GCT  
 CTA ATA GTT TAG CAT CGC CAC CTT CCG ATG AAG AGC TCA CCA AGG CGA  
 XyTv-106 XhoI  
  
 186 187 188 189 190  
 S I T V S  
 AGT ATT ACA GTG AGC TAA A  
 TCA TAA TGT CAC TCG ATT TCT AG-5'  
 BglII

FIGURE 2 CONT'D →

## Replacement Sheet

Ca	23					S	AFNTQAAP	31
Cs	1					G		1
Tr2#		10	20	30	40			
Bp	1	RTITNNEMGN	HSGYDYELWK	DYGNT-SMIL	NNGGAFSAGW	N--NIGNA		45
Ca	32	KTITSNBIGV	NGCYDYELWK	DYGNT-SMIL	KNGGAFSCOW	S--NIGNA		76
Fs	1	NSSVTGNVG	GSPYHYELWY	QGG-NNSMTF	YDNGTYKASW	N--GTNDF		44
Cs	2	RIIYDNETGT	HSGYDYELWK	DYGNT-IMEL	NDGGTFSCOW	S--NIGNA		46
Rf	1	SAADQQTGKN	VGGYDYEMWN	QNGGQASMN	PGAGSFSCSW	S--NIENF		46
Tr2	1	QTIQPGTGY	NGCYFYSYWN	DHGCVVTVN	GPGGQPSVNW	S--NSGNF		45
Tv	1	QTIQPGTGF	NGCYFYSYWN	DHGCVVTVN	GPGGQPSVNW	S--NSGNF		45
Th	1	QTIQPGTGY	NGCYFYSYWN	DHGCVVTVN	GPGGQPSVNW	S--NSGNF		45
Sc	1	SGTFSSTGT	DGGYYSWWT	DGAGDATYQN	NGGGSYTLTW	SG--MNGNL		46
An	1	S	AGINYYQNYN	GNLGDFTY-D	ESAGTFSMYW	EDGVSSDF		38
Ar	1	S	AGINYYQNYN	GNLGDFTY-D	ESAGTFSMYW	EDGVSSDF		38
At	1	S	AGINYYQNYN	GNLGDFTY-D	ESAGTFSMYW	EDGVSSDF		39
Tr1	1	ASINYYQNYQ	TGG-QVSYV	PSNTGFSVNW	N--TQDDF			34
Aa	1	RSTPSSTGE	NGYYSFWT	DGGSDVTVN	GNAGSYSVSW	S--NVGNF		45
Ss	1	ATTIT-NETGY	D-GMYYSFWT	DGGGSVSMNL	NGGGSYSTSW	T--NCGNF		45
SLB	1	DTVVTTNQSGT	NGCYYSFWT	DGGQTVSMNM	GSGGSYSTSW	R--NCGNF		47
SLC	1	ATTITINQGT	D-GMYYSFWT	DGGGSVSMNL	NGGGSYSTSW	T--NCGNF		46
TL	1	QITPNSBGN	HDCYYSWWS	DGCAQATYTN	LEGCTYEISW	G--DGGNL		45
Tf	1	AVTSNETGY	HDCYYSFWT	DAGTIVSMEL	GPGGNYSTSW	R--NTGNF		45
Bc	1		ASTDYWQNW	DGGGIVNAVN	GSGGNYSVNW	S--NTGNF		36
Bs	1		ASTDYWQNW	DGGGIVNAVN	GSGGNYSVNW	S--NTGNF		36

FIGURE 1



## Replacement Sheet

Tr2#		50	60	70	80	
Bp	46	LFRK-CKKFD	ST-RTHQLG	NISINYNASF	N-PSGNSYLC	VYGTWQSP 90
Ca	77	LFRK-CKKFD	DT-QTYKOLG	NISVNYNCNY	Q-PYGNLSYLC	VYGTWSSP 121
Fs	45	LARV-CKKYD	EK-HTVEBLGP	IDIDAYYKWSQ	GSAGGYNYIG	IYGTWVDP 91
Cs	47	LFRK-CKKFD	SD-KTYQELG	DIVVEYGCYD	N-PNGNSYLC	VYGTWRNF 91
Rf	47	LARM-CKKYD	SQKINYKAFG	NIVLTYDVEY	T-PRGNSYMC	VYGTWRNP 92
Tr2	46	VGCK-GWQPG	TKNKV----	---INFS-GS	YNPNGNSYLS	VYGTWRNP 83
Tv	46	VGCK-GWQPG	TKNKV----	---INFS-GS	YNPNGNSYLS	VYGTWRNP 83
Th	46	VGCK-GWQPG	TKNKV----	---INFS-GS	YNPNGNSYLS	VYGTWRNP 83
Sc	47	VGCK-GWQPG	TKNKV----	---INFS-GS	YNPNGNSYLS	VYGTWRNP 83
An	39	VVGL-GWTTG	SSNA-----	---ITSYAE	YQPNNGNSYLS	VYGTWRNP 76
Ak	39	VVGL-GWTTG	SSNA-----	---ITSYAE	YQPNNGNSYLS	VYGTWRNP 76
At	39	VVGL-GWTTG	SSNA-----	---ITSYAE	YQPNNGNSYLS	VYGTWRNP 76
Tr1	35	VVGV-GWTTG	SSAP-----	---INFGSP	T-PSGNGYLS	VYGTWRNP 72
Aa	46	VGCK-GWQPG	SAKD-----	---ITSYGN	FNPNGNGYLC	VYGTWRNP 82
Ss	46	VAGK-GWANG	GR-RT-----	---VRYT-GW	FNPNGNGYLC	VYGTWRNP 84
SlB	48	VAGK-GWANG	GR-RT-----	---VQYS-GS	FNPNGNGYLC	VYGTWRNP 82
SlC	47	VAGK-GWSTG	DGN-----	---VRYN-GY	FNPNGNGYLC	VYGTWRNP 83
Tl	46	VGCK-GWQPG	LNARA-----	---IHFE-GV	YQPNNGNSYLC	VYGTWRNP 82
Tf	46	VAGK-GWATG	GR-RT-----	---VITY-AS	FNPNGNGYLC	VYGTWRNP 75
Bc	37	VVCK-GWTTG	SPFRT-----	---INYNAGV	WAPNGNGYLT	VYGTWRNP 82
Bs	37	VVCK-GWTTG	SPFRT-----	---INYNAGV	WAPNGNGYLT	VYGTWRNP 75

Tr2#		90	100	110	120	130	
Bp	91	LAEEYIVDSW	GTYR-PT--G	AYKGSFYADG	CTYDIYETTR	VNOPSITG	135
Ca	122	LVEYYIVDSW	GSWRPP--GG	TSKGTIIVDG	CTYDIYETTR	INOPSITG	167
Fs	92	LVEYYIVDDW	PNKPGANLLG	QRKGEFTVDG	DTYELWQNTT	VQOPSIKG	139
Cs	92	LVEYYIVDSW	GSWRPP--GA	TPKGTITQWMACT	TEYETTR	VNOPSITG	138
Rf	93	LMEYYIVEGW	GDWRPPGNDG	EVKGTIVSANG	NFYDIRKTRM	VNOPSITG	140
Tr2	84	LIEYYIVENF	GTYN-PSTGA	TKLGEVTSDG	SVYDIRKTRM	VNOPSITG	130
Tv	84	LIEYYIVENF	GTYN-PSTGA	TKLGEVTSDG	SVYDIRKTRM	VNOPSITG	130
Th	84	LIEYYIVENF	GTYN-PSTGA	TKLGEVTSDG	SVYDIRKTRM	VNOPSITG	130
Sc	85	LIEYYIVESY	GSYD-PSSAA	SHKGSVTCNG	ATYDILSTWK	VNAPSITG	131
An	77	QAEYYIVEDY	GDYN-PCSSA	TSLGIVYSYG	STYQVCTDTR	INOPSITG	123
Ak	77	QAEYYIVEDY	GDYN-PCSSA	TSLGIVYSYG	STYQVCTDTR	INOPSITG	123
At	78	QAEYYIVEDY	GDYN-PCSSA	TSLGIVYSYG	STYQVCTDTR	INOPSITG	124
Tr1	73	LVEYYIMEDN	HNY--PAQ-G	TVKGTIVSDG	ATYDIWENTR	VNAPSITG	117
Aa	84	LIEYYIVESY	GSYD-PSSAA	SHKGSVTCNG	ATYDIWENTR	VNAPSITG	130
Ss	83	LVEYYIVDSW	GSYR-PT--G	ETKGTIVSDG	GTYDIYKTRT	VNAPSITG	127
SlB	85	LVEYYIVDSW	GTYR-PT--G	EYKGTIVSDG	GTYDIYKTRT	VNKPSSVG	129
SlC	83	LVEYYIVDSW	GSYR-PT--G	EYKGTIVSDG	GTYDIYKTRT	VNAPSITG	127
Tl	84	LVEYYIVENF	GTYD-PSSGA	TDLGIVVCDG	SIYRLKKTTR	VNAPSITG	130
Tf	83	LVEYYIVESW	GTYR-PT--G	TYMGIVTITG	GTYDIYKTRT	VNAPSITG	127
Bc	76	LIEYYIVDSW	GTYR-PT--G	TYKGTIVKSDG	GTYDIYTTTR	VNAPSITG	120
Bs	76	LIEYYIVDSW	GTYR-PT--G	TYKGTIVKSDG	GTYDIYTTTR	VNAPSITG	120

FIGURE 1 CONT'D

## Replacement Sheet

Tr2#		140	150	160	
Bp	136	-IATFKQYWS VRQTKRTS--	-----GTVS	VSABFRKWES	LGMFM-GK 174
Ca	168	-NTTFKQYWS VRRTKRTS--	-----GTIS	VSKHFAWES	KMDPL-GK 206
Fs	140	-TQTFPQYFS VRKSARSC--	-----GHID	ITAHMKKWE	LGMKM-GK 178
Cs	139	-TATFQYQWS VRTSKRTS--	-----GTIS	VTEHFKQWER	MGMHM-GK 177
Rf	141	-TATFQYQWS VRQTSGSANN	QTNMYMKTID	VSKHFDWASA	AGLDMSOT 187
Tr2	131	-TATFYQYWS VRNRHR-S-S	-----GSVN	TANHFNAWAQ	QSLTL-GT 168
Tv	131	-TATFYQYWS VRNRHR-S-S	-----GSVN	TANHFNAWAQ	QSLTL-GT 168
Th	131	-TATFYQYWS VRNRHR-S-S	-----GSVN	TANHFNAWAQ	QSLTL-GT 168
Sc	132	-TQTFEQYWS VRNPKAPGG	SIS--GTVD	VQCHFDWKG	LGMNLGSE 175
An	124	-TSFTQYFVS VRESTRTS--	-----GTVT	VANHFNFWAQ	HGPGN-SD 162
Ak	124	-TSFTQYFVS VRESTRTS--	-----GTVT	VANHFNFWAQ	HGPGN-SD 162
At	125	-TSFTQYFVS VRESTRTS--	-----GTVT	VANHFNFWAQ	HGPHN-SD 163
Tr1	118	-TATFNQYIS VRNSPR-T-S	-----GTIT	VQNHFN-WAS	LGLHLGOM 155
Aa	131	-TQTFQYQWS VRQNRK-VG-	-----GTVT	TSNHFNAWAQ	LGMNL-GT 168
Ss	128	-PAAFDQYWS VRQSKVT--S	-----GTIT	TGNHFDWAAR	AGNMNGNF 168
SlB	130	TR-TFDQYWS VRQSKR-TG-	-----GTIT	TGNHFDWAAR	AGMPLGNF 168
SlC	128	TK-TFDQYWS VRQSKVTSGS	-----GTIT	TGNHFDWAAR	AGNMNGOF 168
Tl	131	TQ-TFDQYWS VRQDKR-T-S	-----GTVQ	TGCHFDWAAR	AGLNVDGD 169
Tf	128	TR-TFDQYWS VRQSKRTS--	-----GTIT	AGNHFDWAAR	HGMHLGTH 166
Bc	121	DRITFTQYWS VRQSKRPTGS	N-----ATIT	FTNHVNAWKS	HGMNLGSH 163
Bs	121	DRITFTQYWS VRQSKRPTGS	N-----ATIT	FSNHVNAWKS	HGMNLGSH 163

Tr2#		170	180	190	
Bp	175	MYETAPTVEG	YQSSGSANVM	TNQLFIGN	201 SEQ ID NO:4
Ca	207	MHETAFNIEG	YQSSGKADVN	SMSINIGK	233 SEQ ID NO:6
Fs	179	MYEAKVLVEA	GGSGSGFDV-	TYFKMT	203 SEQ ID NO:18
Cs	178	MYEVALTVEG	YQSSGYNVY	KNEIRIGANP....	SEQ ID NO:7
Rf	188	LYEVLNIEG	YRSNGSANVK	SVSV	211 SEQ ID NO:8
Tr2	169	MDYQIVAVEG	YFSSGASASI	TVS	190 SEQ ID NO:16
Tv	169	MDYQIVAVEG	YFSSGASASI	TVS	190 SEQ ID NO:17
Th	169	MDYQIVAVEG	YFSSGASASI	TVS	190 SEQ ID NO:14
Sc	176	HNQIVATEG	YQSSGTATI-	TVT	197 SEQ ID NO:9
An	163	FNQYQMAVEA	WSGAGSASV-	TISS	184 SEQ ID NO:1
Ak	163	FNQYQMAVEA	WSGAGSASV-	TISS	184 SEQ ID NO:54
At	164	FNQYQMAVEA	WSGAGSAAV-	TISS	185 SEQ ID NO:2
Tr1	157	MNXYQVAVEG	WGSGGSASQ-	SVSN	178 SEQ ID NO:15
Aa	169	HNXYQILATEG	YQSSGSSSI-	TIQ	190 SEQ ID NO:19
Ss	167	RYYMINATEG	YQSSGSSSTI-	TVSG	189 SEQ ID NO:12
SlB	169	SYYMINATEG	YQSSGSSSTI-	TVSG	189 SEQ ID NO:10
SlC	169	RYYMINATEG	YQSSGSSSTI-	TVSG	191 SEQ ID NO:11
Tl	170	HYQIVATEG	YFSSGYARI-	TVADVG	194 SEQ ID NO:20
Tf	167	D-YMINATEG	YQSSGSSSNV	LGTS.....	SEQ ID NO:13
Bc	164	WAYQVMATEG	YQSSGSSSNV-	TVW	165 SEQ ID NO:3
Bs	164	WAYQVMATEG	YQSSGSSSNV-	TVW	165 SEQ ID NO:5

FIGURE 1 CONT'D

## Replacement Sheet

st

5'-CT AGC TAA GGA GG CTG CAG ATG  
           G ATT CCT CC GAC GTC TAC  
 NheI | PstI

TrX-1

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Q	T	I	Q	P	G	T	G	Y	N	N	G	Y	F	Y	S
CAA	ACA	ATA	CAA	CCA	GGA	ACC	GGT	TAC	AAC	AAC	GGT	TAC	TTT	TAC	AGC
GTT	TGT	TAT	GTI	GGT	CCT	TGG	CCA	ATG	TTG	TTG	CCA	ATG	AAA	ATG	TGG

TrX-8                      AgeI

XyTv-2

17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Y	W	N	D	G	H	G	G	V	T	Y	T	N	G	P	G
TAT	TGG	AAC	CAT	GGC	CAT	GGT	GGT	GTT	ACC	TAT	ACA	AAC	GGG	CCC	GGA
ATA	ACC	TTG	CTA	CCG	GTA	CCA	CCA	CAA	TGG	ATA	TGT	TTG	CCC	GGG	CCT

NcoI                      XyTv-7                      ApaI

33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
G	Q	F	S	V	N	W	S	N	S	G	N	F	V	G	G
GGC	CAA	TTT	AGC	GTC	AAT	TGG	TCT	AAC	TCC	GGA	AAC	TTC	GTA	GGT	GGA
CCG	GTT	AAA	TGC	CAG	TTA	ACC	AGA	TTG	AGG	CCT	TTG	AAG	CAT	CCA	CCT

MunI                      BspEI

TrX-3

49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64
K	G	W	Q	P	G	T	K	N	K	V	I	N	F	S	G
AAA	GGT	TGG	CAA	CCC	GGG	ACC	AAA	AAT	AAG	GTG	ATC	AAC	TTC	TCT	GGA
TTT	CCA	ACC	GTT	GGG	CCC	TGG	TTT	TTA	TTC	CAC	TAG	TTG	AAG	AGA	CCT

XmaI                      TrX-6

65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
S	Y	N	P	N	G	N	S	Y	L	S	V	Y	G	W	S
TCT	TAT	AAT	CCG	AAT	GGG	AAT	TCA	TAC	TTA	AGC	GTC	TAT	GGC	TGG	TCT
AGA	ATA	TTA	GGC	TTA	CCC	TTA	AGT	ATG	AAT	TGG	CAG	ATA	CCG	ACC	AGA

EcoRI                      AflII

XyTv-4

81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
R	N	P	L	I	E	Y	Y	I	V	E	N	F	G	T
AGA	AAC	CCA	CTG	ATT	GAA	TAT	TAC	ATT	GTC	GAA	AAT	TTC	GGT	AC
TCT	TTG	GGT	GAC	TAA	CTT	ATA	ATG	TAA	CAG	CTT	TTA	AAG	C	

XbaI                      XyTv-5                      KpnI

FIGURE 2

## Replacement Sheet

XyTv-101

V	D	92	93	94	95	96	97	98	99	100	101	102	103	104	105
TC	GAC	AAT	TTC	GGT	ACC	TAC	AAT	CCG	AGT	ACC	GGC	GCC	ACA	AAA	TTA
3'-G	TTA	AAG	CCA	TGG	ATG	TTA	GGC	TCA	TGG	CCG	CGG	TGT	TTT	AAT	

Sali | KpnI XyTv-110 Kasi/Nari

XyTv-102

106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121
G	E	V	T	S	D	G	S	V	Y	D	I	Y	R	T	Q
GGC	GAA	GTC	ACT	AGT	GAT	GGA	TCC	GTA	TAT	GAT	ATC	TAC	CGT	ACC	CAA
CCG	CTT	CAG	TGA	TCA	CTA	CCT	AGG	CAT	ATA	CTA	TAG	ATG	GCA	TGG	GTT

SpeI BamHI XyTv-109

TrX-103

122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137
R	V	N	Q	P	S	I	I	G	T	A	T	F	Y	Q	Y
CGC	GTT	AAT	CAG	CCA	TCG	ATC	ATT	GGA	ACC	GCC	ACC	TTT	TAT	CAG	TAC
CGC	CAA	TTA	GTC	GGT	AGC	TAG	TAA	CCT	TGG	CGG	TGG	AAA	ATA	GTC	ATG

MIUI Clai

138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153
W	S	V	R	R	N	H	R	S	S	G	S	V	N	T	A
TGG	AGT	GTT	AGA	CGT	AAT	CAT	CGG	AGC	TCC	GGT	TCG	GTT	AAT	ACT	GCG
ACC	TCA	CAA	TCT	GCA	TTA	GTA	GCC	TCG	AGG	CCA	AGC	CAA	TTA	TGA	CGC

TrX-108 SacI

XyTv-104

154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169
N	H	F	N	A	W	A	Q	Q	G	L	T	L	G	T	M
AAT	CAC	TTT	AAT	GCA	TGG	GCA	CAG	CAA	GGG	TTA	ACC	CTA	GGT	ACA	ATG
TTA	GTG	AAA	TTA	CGT	ACC	CGT	GTC	GTT	CCC	AAT	TGG	GAT	CCA	TGT	TAC

NsiI XyTv-107 AvrII

XyTv-105

170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185
D	Y	Q	I	V	A	V	E	G	Y	F	S	S	G	S	A
GAT	TAT	CAA	ATC	GTA	GCG	GTG	GAA	GGC	TAC	TTC	TCG	AGT	GGT	TCC	GCT
CTA	ATA	GTT	TAG	CAT	CGC	CAC	CTT	CGG	ATG	AAG	AGC	TCA	CCA	AGG	CGA

XyTv-106 XhoI

186	187	188	189	190											
S	I	T	V	S											
AGT	ATT	ACA	GTG	AGC	TAA	A									
TCA	TAA	TGT	CAC	TCG	ATT	TCT	AG-5'								

BglII

SEQ ID NO:16  
SEQ ID NO:39

FIGURE 2 CONT'D